The foregoing investigation furnishes also explanation as to the quantities of materials to be handled in each process This amounts per ton of steel
In the acid Bessemer process to 1,000
920 UJ tonSt In the basic open-hearth „ ,, 1,284
1,068 ° '
If, on the other hand, the pig iron at disposal consists of the following composition, 1*8 per cent. P, 0*5 per cent. Si, 2 per cent. Mn, and 4 per cent. C, according to which it is suitable for the basic Bessemer process, so there would be necessary for the working of the same in the open-hearth furnace in conjunction with the winning of the phosphoric
,
acid in the most concentrated form :
1. Iron ore for dephosphorisation :
For 0-5 percent. Si (vide 63) x7'62= 3*81 per cent. Fe208 „ 1-8 „ P(„
64) X 7-80 = 14-04 „ „
„ 2-0 „ Mn(,, 65) X0'97= l-»4
Total . . . 19;79 per cent. FggOa
For the elimination of the same reducing agents with com-plete decarburisation, there would, however, only be needed :
For 0-5 per cent. Si (vid* 67) x4-32= 2- 16 per cent. Fea08
„ 1-8 ,, P („ 69) X4'30= 7*74 „
„ 2-0 „ Mn(„ 71) X0'97= 1-94
Total . . . 11-84 per cent. Fe208
1
Thus there remains from the first considered iron peroxide requirement, an excess of 19-79 ~11'84 or 7'95 per cent. FeaOs, which could serve for the removal of a portion of the carbon content. The 4 per cent, carbon present requires inclusively, 4x3-60=:14-4 per cent. Fe.203 (vide IS), so that for the decarburisation in the second stage of the process still 14-40— 7-95=6-45 per cent. Fe203 would be added. The total requirement of iron peroxide amounts, therefore, to 19*79 + 6"45 =26*24 per cent. Fe203, and the ore requirement, employing
ore containing 95 per cent, Fe208, would equal At Q~l ..... =
o*yo
about 28 per cent.
x 2